



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,674	07/07/2006	Shigetaka Sakakibara	2271/76516	4701
23432 7590 09/02/2010 COOPER & DUNHAM, LLP 30 Rockefeller Plaza 20th Floor NEW YORK, NY 10112				
EXAMINER				
TRAN, DUNG D				
ART UNIT		PAPER NUMBER		
2625				
MAIL DATE		DELIVERY MODE		
09/02/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,674

Applicant(s)

SAKAKIBARA ET AL.

Examiner

Dung D. Tran

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 June 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SF/87)
Paper No(s)/Mail Date 10/9/2009, 12/24/2008, 8/5/2008, 3/24/2008, 7/7/2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: Claim 8 recites "...to be realized by the black recording medium until reaching..." It appears that the claim should recite "...to be realized by the black recording liquid until reaching..."
Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 4, 7-8, 11, 14-15, the phrase "such that" in each claim, renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 2-3, 5-6, 9-10, and 12-13 are also rejected since they depend on independent claims.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-6 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent (*Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876) and recent Federal Circuit decisions (*In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008) indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, the claims do not specify what apparatus performs the regulating and setting steps. Also the claims do not transform an article (the image that is processed in the regulating and setting steps are not an article). The method comprising the steps of regulating and setting is of sufficient breadth that it would reasonably be interpreted as a series of steps completely performed mentally, verbally or without a machine. For example, a person could mentally regulating a maximum black recording liquid incorporation amount in his mind and then mentally setting a composite black using additional three colors (CMY) when the maximum regulating black is higher than a certain threshold.

Claims 1-6 are rejected based on the above analysis because they do not in themselves satisfy either of the conditions of eligibility for a § 101 process.

4. **Claims 7, 14** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The printer driver claimed is merely a set of software instructions per se. Since the printer driver is merely a set of software instructions not embodied on a computer readable medium to realize the computer program functionality, the claimed subject matter is non-statutory. See MPEP § 2106 IV.B.1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 3-8, 10-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,765,693 B1 to Chang in view of U.S. Patent No. 7,570,375 to Morisaki et al and in further view of U.S. Patent No. 5,162,860 to Nami et al.

7. As to **claim 1**, Chang discloses an image processing method (method of figure 3) for performing an under color removal process (determining gray component value, step 32, figure 3) and a black recording liquid incorporation process with respect to an input three-color signal (process of figure 3), and generating image data for an imaging apparatus that is configured to form a color image on a recording medium using at least a cyan recording liquid, a magenta recording liquid, a yellow recording liquid, and a black recording liquid (CMYK four color process, column 3, lines 40-45), the method comprising the steps of:

regulating a maximum black recording liquid incorporation amount (second threshold when the value of black ink become constant, column 2, lines 35-45) such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded; and

setting the black to be realized by the black recording liquid until reaching the regulated maximum black recording liquid incorporation amount (step 32, figure 3 and column 27-34), and setting the black to be realized through addition of a composite of the cyan recording liquid, the magenta recording liquid, and the yellow recording liquid if the black to be realized requires an amount of the black recording liquid exceeding the regulated maximum black recording liquid incorporation amount (step 34, figure 3 and column 3, lines 40-46).

Chang does not expressly disclose such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium is not substantially degraded (print data for color mixing mode is generated when printing on glossy paper so that the output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's image processing method by the teaching of Morisaki because it would allow the method to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's image processing method by the teaching of Nami because it would allow the method to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

8. As to **claim 3**, Chang further discloses wherein the maximum black recording liquid incorporation amount is regulated in the black recording liquid incorporation process according to characteristics of the recording medium, and is arranged to be greater than 0% and less than 52% (maximum black incorporation amount of 25%-35%, figure 2).

Chang does not expressly disclose the black recording liquid incorporation process according to characteristics of the recording medium.

Nami, in the same area of inkjet printing, discloses the black recording liquid incorporation process according to characteristics of the recording medium (column 3, lines 53-64).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's image processing method

by the teaching of Nami because it would allow the method to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper.

9. As to **claim 4**, Chang further disclose wherein the maximum black recording liquid incorporation amount is regulated (maximum black incorporation amount of 25%-35%, figure 2) such that the glossiness of the black realized in the image formed on the glossy recording medium does not become substantially lower than glossiness of the glossy recording medium.

Chang does not expressly disclose such that the glossiness of the black realized in the image formed on the glossy recording medium does not become substantially lower than glossiness of the glossy recording medium.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium does not become substantially lower than glossiness of the glossy recording medium (print data for color mixing mode is generated when printing on glossy paper so that the output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's image processing method by the teaching of Morisaki because it would allow the method to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57, glossiness can be lower or rise by controlling coefficient K, column 8, lines 10-32).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's image processing method by the teaching of Nami because it would allow the method to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

10. As to **claim 5**, Chang further disclose wherein an under color removal amount for the under color removal process is set to 100% (BG/UCR is at 100%, column 3, lines 27-30).

11. As to **claim 6**, Chang further disclose wherein an under color removal amount for the under color removal process is set to 100% until the under color removal amount reaches the regulated maximum black recording liquid incorporation amount (BG/UCR is at 100% if gray component density is below first threshold, column 3, lines 27-34).

12. As to **claim 8**, Chang discloses an imaging apparatus (printing system, column 2, lines 32-33) that is configured to perform an under color removal process (determining gray component value, step 32, figure 3) and a black recording liquid incorporation process with respect to an input three-color signal (process of figure 3), and form a color

image on a recording medium using at least a cyan recording liquid, a magenta recording liquid, a yellow recording liquid, and a black recording liquid (CMYK four color process, column 3, lines 40-45), the apparatus comprising:

a processing unit (processor, column 4, lines 7) that is configured to regulate a maximum black recording liquid incorporation amount (second threshold when the value of black ink become constant, column 2, lines 35-45) such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded, set the black to be realized by the black recording medium until reaching the regulated maximum black recording liquid incorporation amount (step 32, figure 3 and column 27-34), and set the black to be realized through addition of a composite of the cyan recording liquid, the magenta recording liquid, and the yellow recording liquid if the black to be obtained requires an amount of the black recording liquid exceeding the regulated maximum black recording liquid incorporation amount (step 34, figure 3 and column 3, lines 40-46).

Chang does not expressly disclose such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium is not substantially degraded (print data for color mixing mode is generated when printing on glossy paper so that the output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's imaging apparatus by the teaching of

Morisaki because it would allow the apparatus to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's imaging apparatus by the teaching of Nami because it would allow the apparatus to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

13. As to **claims 10-13**, claims 10-13 are for an imaging apparatus (printing system, column 2, lines 32-33) correspond to method claims 3-6. Therefore they have been analyzed and rejected based on method claims 3-6 respectively.

14. As to **claim 7**, Chang discloses a printer driver run on a computer (method of figure 3) that is configured to perform an under color removal process (determining gray component value, step 32, figure 3) and a black recording liquid incorporation process with respect to an input three-color signal (process of figure 3), and generate image data for an imaging apparatus that is configured to form a color image on a recording medium using at least a cyan recording liquid, a magenta recording liquid, a yellow

recording liquid, and a black recording liquid (CMYK four color process, column 3, lines 40-45), which printer driver is executed by the computer to perform the steps of:

regulating a maximum black recording liquid incorporation amount (second threshold when the value of black ink become constant, column 2, lines 35-45) such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded; and

setting the black to be realized by the black recording liquid until reaching the regulated maximum black recording liquid incorporation amount (step 32, figure 3 and column 27-34), and setting the black to be realized through addition of a composite of the cyan recording liquid, the magenta recording liquid, and the yellow recording liquid if the black to be realized requires an amount of the black recording liquid exceeding the regulated maximum black recording liquid incorporation amount (step 34, figure 3 and column 3, lines 40-46).

Chang does not expressly disclose such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded and a printer driver run on a computer.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium is not substantially degraded (print data for color mixing mode is generated when printing on glossy paper so that the output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6) and a printer driver run on a computer (column 5, lines 50-59).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's system by the teaching of Morisaki because it would allow the system to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper using a printer driver from a computer.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's system by the teaching of Nami because it would allow the system to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

15. As to **claim 14**, Chang discloses an image processing apparatus that is configured to generate image data for an imaging apparatus (printing system, column 2, lines 32-33) that forms a color image on a recording medium using at least a cyan recording liquid, a magenta recording liquid, a yellow recording liquid, and a black recording liquid (CMYK four color process, column 3, lines 40-45), the apparatus comprising:

a printer driver (processor, column 4, lines 7) that is configured to perform an under color removal process (determining gray component value, step 32, figure 3) and a black recording liquid incorporation process (process of figure 3) with respect to an input three-color signal, regulate a maximum black recording liquid incorporation amount (second threshold when the value of black ink become constant, column 2, lines 35-45) such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded, set the black to be realized by the black recording liquid until reaching the regulated maximum black recording liquid incorporation amount (step 32, figure 3 and column 27-34), and set the black to be realized through addition of a composite of the cyan recording liquid, the magenta recording liquid, and the yellow recording liquid if the black to be obtained requires an amount of the black recording liquid exceeding the regulated maximum black recording liquid incorporation amount (step 34, figure 3 and column 3, lines 40-46).

Chang does not expressly disclose such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded and an image processing apparatus that is configured to generate image data for an imaging apparatus, the apparatus comprising: a printer driver.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium is not substantially degraded (print data for color mixing mode is generated when printing on glossy paper so that the output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6) and an image processing apparatus that is configured to generate image data for an imaging

apparatus (computer system and print system in figure 1-2), the apparatus comprising: a printer driver (column 5, lines 50-59).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's image processing apparatus by the teaching of Morisaki because it would allow the apparatus to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper using a printer driver from a computer.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's image processing apparatus by the teaching of Nami because it would allow the apparatus to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

16. As to **claim 15**, Chang discloses an imaging system, comprising:

an imaging apparatus that is configured to form a color image on a recording medium (printing system, column 2, lines 32-33) using at least a cyan recording liquid, a magenta recording liquid, a yellow recording liquid, and a black recording liquid (CMYK four color process, column 3, lines 40-45); and

an image processing apparatus that is configured to generate image data for the imaging apparatus, which image processing apparatus includes a printer driver (processor, column 4, lines 7) that is configured to perform an under color removal process (determining gray component value, step 32, figure 3) and a black recording liquid incorporation process with respect to an input three-color signal (process of figure 3), regulate a maximum black recording liquid incorporation amount (second threshold when the value of black ink become constant, column 2, lines 35-45) such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded, set the black to be realized by the black recording liquid until reaching the regulated maximum black recording liquid incorporation amount (step 32, figure 3 and column 27-34), and set the black to be realized through addition of a composite of the cyan recording liquid, the magenta recording liquid, and the yellow recording liquid if the black to be obtained requires an amount of the black recording liquid exceeding the regulated maximum black recording liquid incorporation amount (step 34, figure 3 and column 3, lines 40-46).

Chang does not expressly disclose such that glossiness of black realized in an image formed on a glossy recording medium is not substantially degraded and an image processing apparatus that is configured to generate image data for the imaging apparatus, which image processing apparatus includes a printer driver.

Morisaki, in the same area of inkjet printing, discloses such that the black and white image formed on a glossy recording medium is not substantially degraded (print data for color mixing mode is generated when printing on glossy paper so that the

output image is not deteriorated, column 7, lines 20-32 and S22-23 of figure 6) and an image processing apparatus that is configured to generate image data for the imaging apparatus (computer system and print system in figure 1-2), which image processing apparatus includes a printer driver (column 5, lines 50-59).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's imaging system by the teaching of Morisaki because it would allow the system to enhance the output image quality by adjusting the black according to specific recording mediums such as glossy paper using a printer driver from a computer.

Chang, as modified by Morisaki, still does not teach the glossiness of black realized in an image.

Nami, in the same area of color image printing apparatus, discloses the glossiness of black realized in an image (controlling the black glossiness of an output image, abstract and column 10, lines 51-57).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang/Morisaki's imaging system by the teaching of Nami because it would allow the system to enhance the overall output image glossiness regardless of color of each object in the output image, and an image with excellent quality could be obtained.

17. **Claims 2, 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,765,693 B1 to Chang in view of U.S. Patent No. 7,570,375 to Morisaki et al

and in further view of U.S. Patent No. 5,162,860 to Nami et al. and in further view of U.S. Patent No. 6,274,282 B1 to Sugimoto et al.

18. As to **claim 9**, Chang discloses an imaging apparatus as recited in the parent claim. Chang does not expressly disclose the cyan recording liquid, the magenta recording liquid, the yellow recording liquid, and the black recording liquid contain pigment.

Sugimoto, in the same area of image printing, discloses the cyan recording liquid, the magenta recording liquid, the yellow recording liquid, and the black recording liquid contain pigment (column 5, lines 50-67 – column 6, lines 1-17).

It would have been obvious to a person with ordinary skill in the art at the time the invention was made to have modified Chang's imaging apparatus by the teaching of Sugimoto because colorant pigmented inks are water-insoluble, and the printed products produced using pigment inks accordingly have a good resistance to water, pigments are distinctly inferior to dyes in tinctorial strength and chroma. In addition, compared with dyes, pigment inks also have a lower degree of fadeness to light, with the result that printed products produced using pigment inks fade substantially more slowly.

19. As to **claim 2**, claim 2 is an imaging processing method (abstract) corresponds to apparatus claim 9. The rationale provided in the rejection of claim 9 is incorporated herein. In addition, the apparatus of claim 9 performs the method of this claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung D. Tran whose telephone number is (571)270-5309. The examiner can normally be reached on Monday-Friday 7:30AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (571) 272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. D. T./
Examiner, Art Unit 2625

/Mark K Zimmerman/
Supervisory Patent Examiner, Art Unit 2625